

ABSTRACT OF THE DISCLOSURE

Transmitters for generating multilevel transmit waveforms for medical diagnostic ultrasound are provided. Voltages from a plurality of sources are superposed or summed. Switches control the amplitude and polarity of the summed voltages so that a transmit waveform having four or more, such as nine, voltage levels is provided. A simple switching pulser without a power amplifier combines voltages applied to two or more flux paths in a third flux path. Superposition of magnetic flux in the third flux path provides for an output voltage responsive to the sum and difference of two different voltages. Alternatively or additionally, the secondary windings of multiple transformers are connected in series with a transducer element. By providing different input voltages to each of the transformers, the multilevel transmit waveform is generated.

10028590, 10028592